

Ethanol Production from Sweet Sorghum

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Abstract

One alternative crop under consideration for use in arid regions is sweet sorghum. Sweet sorghum requires less water and fertilizer than corn and can tolerate saline. The sweet sorghum juice however, needs to be preserved if an ethanol production facility is to operate year-round instead of seasonally. Ethanol yield was used to evaluate the effect of various sugar preservation schemes on the fermentation of sweet sorghum juice. Juice samples were preserved by refrigerating at 7°C, autoclaving at 121°C for 15 minutes, or adding citric acid (40mg/100ml) or lime (4g/150ml). The fermentation of refrigerated sweet sorghum juice containing no preservative yielded 9% (v/v) ethanol. Experiments with other preservation schemes yielded at most 4% (v/v) ethanol. No method considered here was found satisfactory for the preservation of sweet sorghum juice for ethanol production on the laboratory or industrial scale. Fermentation was optimized at the neutral juice pH 5.